Montana Department of Environmental Quality

Watershed Management Update

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This newsletter is published by the Montana Department of Environmental Quality (DEQ) in an effort to share information with local watershed planning groups. Local groups are encouraged to share their success stories with others working in the state to improve and protect water quality. To publish an article in the newsletter contact Stuart Lehman at (406) 444-5319

"River conservation on lands primarily privately held simply will not work unless the local citizenry and local governments are invested and committed to protecting their local stream. No amount of congressional legislation, government regulation or the like will succeed without the assistance of those who live and work along the river."

Elizabeth Norcross and Gabriel Calvo American Rivers

Watershed Restoration New Ways to Fix Old Problems

by Pat Saffel, Fisheries Biologist, MFWP

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Eroding stream banks, braided streams, frequent and unpredictable flooding are all signs of problems in watersheds that express themselves through streams. Sometimes these problems can be solved directly where they are occurring. Often, however, the problems indicate more going on in the watershed. Likewise, things like bank erosion can result in damage elsewhere. For example, a real life scenario might follow this progression:

1) Bank erosion occurs at Point A because streamside vegetation is removed. Other events causing erosion could be a road built on the opposite side of the stream or a natural event.

2) Sediment (sand, silt, cobbles, etc.) eroded from Point A is deposited downstream at Point B.

3) At Point B the increased sediment results in the stream trying to find a path through the excessive sediment. If the banks are strong and have the right type of vegetation, the stream may just maintain or shift its course somewhat within its banks. If the banks are not strong, the real trouble begins! Okay, for the sake of this example, let's say the banks at Point B are weak.

4) The stream stresses the weak banks as it tries to find its new path and find it is easier to erode the banks than move the new in-channel sediment. The result – a braided stream, lost land, flooding, and more sediment to move to the next point downstream.

In this example, we would point our finger at Point A and fix it, which may require cooperation between two landowners. However, Point A is often a "cumulative effect" from "non-point" sources throughout the watershed. Therefore, watershed restoration is the solution.

Why is Watershed Restoration a New Way to Fix Old Problems?

We have known for a long time that streams and rivers can be degraded by actions throughout the watershed. The answer lies in the process we use to address the issues. What watershed restoration relies on is the cooperation between landowners (this includes government) and the dissolving of the attitude typified by the statement "my concerns end at the fence line." This is certainly a western ideal expressing individualism of the private landowner, but it has long been the way government agencies worked as well by not addressing issues that cross agency responsibilities. The result of this attitude has increased permitting, degraded fish and wildlife habitat, and polluted water – not the goal of any agency or private landowner.

How Watershed Restoration Works

The watershed group, or council, is the nuts and bolts of the restoration process. The group works together to develop goals, solicit technical information and advice, apply for grants and help with restoration activities. Preferably, the group is made up of landowners themselves, but can be aided by a facilitator that is experienced in the steps needed to meet objectives. Still the landowners are the ones in charge and drive the process.

Concerns of landowners (*this can include government, corporations and individuals*) are often about what they are giving up as far as their rights to manage their property. Yet, the landowner maintains every right to own and manage their land. The bottom line

GLICKMAN *calls for* NATIONAL COMMITMENT TO PRESERVE AMERICA'S PRIVATE LAND

AMES, IOWA, December 7, 1999—Releasing a new national study that shows America's conservation efforts falling short, Agriculture Secretary Dan Glickman today called for a renewed national commitment to preserving private land.

"Conservation challenges are mounting and intensifying more quickly than we are solving them," said Glickman, addressing USDA's National Conservation Summit at Iowa State University. "This report demonstrates that we must redouble our efforts to preserve farm and forest land, reduce soil erosion, improve water quality, and protect wetlands."

Glickman released USDAs National Resources Inventory, a report on the health of America's private land, which accounts for about 70 percent of the land in the United States. The report finds:

From 1992 to 1997, nearly 16 million acres of agricultural and forest land were developed. We are now loosing 3 million acres per year of forest and agricultural land, double what was lost each year from 1982 to 1992.

Nearly 2 billion tons of soil is eroding into waterways each year. Despite significant gains in erosion control during the past 15 years, there has been no additional improvement since 1995.

Gross wetland losses have increased to 54,000 acres annually on agricultural land. But wetland preservation efforts, like the Wetland Reserve Program, are helping. Wetland gains are nearly 30,000 acres.

Tree and forest cover in urban areas is declining at an alarming rate. In the Chesapeake Bay region, for example, tree canopy has declined from 51 percent cover to 37 percent in the last 25 years.

"All Americans concerned about clean water, clean air, and preserving our quality of life should come together to do more to address these conservation challenges," said Glickman. "Stewardship of the land falls to all of us as Americans."

At the Summit, Glickman urged participants from the business, agriculture and forest communities, landowners, conservation leaders, academicians, and environmental activists to provide leadership in a collaborative effort to improve the declining health of the nations private land.

Glickman also said he would recommend that the President convene a national conference on conservation next year.

Additional information on the *National Conservation Summit on Private Land* and the report can be obtained on the web at http://www.nrcs.gov/

is "it is your land" and the group works on ways to improve the watershed in a coordinated manner that benefits all. If projects are targeted for a particular portion of property, it is entirely the landowner's say whether or not it will proceed, or if they would like some specific modification that is agreeable to all. Support of all, or most, landowners is needed to obtain meaningful results. Involvement by a landowner in the particular tasks is flexible. Some landowners want to be very involved while others follow the process through meeting minutes or word-of-mouth.

"Ripping" Cottonwoods for Regeneration

by Alice Sellars, Lower Mussellshell CD

Cottonwood trees are a major part of the ecosystem along our nation's river bottoms and drainage ways. Here in Montana they are the dominant trees along our riparian areas. Some cottonwoods are dying and not returning along some riparian areas. This is of concern to some people and has caused quite a bit of discussion about *why*. Some causes may be the lack of a significant flooding event, livestock grazing and wildlife browsing, physical drying out of the terraces upon which cottonwoods grow as a result of downcutting channels, dams on rivers causing reduction of floods, routing of local floodwaters under highways, railroads, around fields, etc., thereby limiting the opportunity of floodwaters and natural stand/tree replacement.

Cottonwood Facts

1) To regenerate from seed, cottonwoods must have a moist mineral soil seedbed free of competing vegetation, during a 2- week period each year.

2) Cottonwoods are capable of regeneration from root sprouts. The older the tree, the less vigorously they will sprout.

3) Cottonwoods are very shade intolerant, even if sprouts occur, they will not likely survive.

4) Injury of cottonwood root systems by ripping or fire can stimulate root regeneration.

5) Cottonwood sprouts are palatable to grazing ungulates during a specific time of the year.

6) Cottonwoods can establish from planted seedlings and pole planting, but not without site preparation or irrigation. Both are expensive.

Conservation District Experiments

The Powder River Conservation District in southwest Montana has seen the decline and loss of cottonwoods along the Powder River. They were interested in trying some new methods for regenerating cottonwoods along some of the stretches that still have viable cottonwood stands. There was new information coming from Canada about some successes they were having regenerating cottonwoods by ripping and thus injuring the root systems for black cottonwoods.

Realizing that trying this idea out was going to create some expenses, the Powder River CD was successful in obtaining a state grant and funding from the Montana Audubon Society to defer some of the expenses. 1999 is the third year of this effort.

Two sites were selected. Each site has three cells: 1) an open cell; 2) a livestock fence cell; and 3) a game fence cell. Each cell was ripped with a single blade CAT in the fall and spring. New cottonwood plants were found as a result of the ripping.

The Results

The summary results of the first two years are as follows: Both fall and spring ripping methods produced new cottonwood sprouts. The spring method produced 3-4 times more sprouts. More sprouts occurred in the 40-60 year old stand. Most occurred within 6-inches of the surface. Deep ripping wasn't necessary and a few cottonwood sprouts occurred in the CAT tracks where the CAT turned around and cut a little deeper than normal. No official results or conclusions have been determined at this time.

If you are interested in this project and want more information, please contact the NRCS at (406) 632-5534, ext. 107.

Special Thanks to
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Impacts to Agriculture From Water Quality Concerns

What are some of the concerns of the agricultural community relating to water quality? Here are some of the reasons the ag-community is concerned about water quality.

1. Livestock and crop productivity can be limited by problems such as saline seeps and high dissolved solids (salts, chloride, sulfates).

2. Increased sediment pollution increases the maintenance costs of irrigation pumps, pipes, sprinklers, and other equipment.

3. Personal use of the water body may be limited – fewer fish and wildlife are found in the water body, contaminated drinking water (*groundwater and surface water*) from nutrients, pesticides and metals may present health concerns.

4. Ranches and farms that diversify often rent out guest houses or allow fee fishing such as Yellowstone spring creeks, dude ranches, etc. Fewer fish and wildlife means less interest which means less business, and income is lowered.

5. Cattle produce more milk and grow faster with clean water from a developed spring or well.

6. The presence of certain bacteria may negatively affect livestock. Bacteria can also affect dairy classification and the value of the milk.

7. Down-cutting of streams can leave headgates high and dry and results in increased channel erosion and bank instability. Possible causes of stream down-cutting can include riparian degradation, flow alteration and channel and/or floodplain alterations.

8. Sideways channel migration can erode valuable floodplain soils and bottomlands. The possible causes for this are similar to item No. 7 above.

9. Sediment can fill irrigation ditches and reservoirs adding to maintenance expenses and shortening the life span.

10. Excessive nutrients often cause irrigation maintenance problems from algae and aquatic plant growth. Ditches, screens, filters, and sprinklers require more frequent maintenance.

11. Protecting wetlands and riparian areas protects aquatic biological diversity. Native species perform important ecological functions from nutrient management to stream stability.

12. Fewer aquatic and riparian species may mean reduced cycling of nutrients and organic matter in aquatic ecosystems. More nutrients in the aquatic system can cause overgowth of nuisance and exotic plants in downstream lakes, ponds, reservoirs, and estuaries.

13. High levels of hydrocarbons, chlorides, and other water quality pollutants can cause cattle to abort their calves.

14. Certain algae, the result of too much nitrogen and phosphorus, produce toxins that may affect drinking water for humans and cattle.

15. The first soils to erode through water action are often the most productive topsoil and floodplain soils. Replacement naturally of topsoil can take hundreds of years.

16. Salts and sodium in irrigation water decrease the value of soil by inhibiting water uptake and workability (structure). Yields of sensitive crops are reduced.

17. Some salts, such as sodium salts, can be erosive to steel equipment and concrete structures.

USGS Yellowstone River Basin Study Available

Chemical data for bed sediment were analyzed as part of the *U.S. Geological Survey National Water Quality Assessment Program* investigation of the Yellowstone River Basin in parts of Montana, North Dakota and Wyoming. The primary data set consisted of about 13,000 samples collected during 1974-1979 for the *National Uranium Resource Evaluation Program*. Data were available for 50 elements. Of particular interest are the descriptive statistics presented to serve as a baseline for element concentrations associated with different geologic settings.

For further information related to this study, visit the website: wyoming.usgs.gov/YELL/yell.html. For a copy of the report contact Thomas Quinn at (307) 778-2931, ext. 2748.

Conferences

WATERSHED 2000 is an international specialty conference sponsored by the *Water Environment Federation (WEF)*, the *British Columbia Water and Waste Association*, and the *Western Canada Water and Wastewater Association*. The conference will be held in Vancouver, British Columbia, Canada July 9-12, 2000 at the Hotel Vancouver.

Topics include *Water Resource Planning, Source Water Protection, Sustainable Watershed Protection, Multi-use Watershed Management, etc*.

For more information visit the website at www.wef.org or call

800-666-0206

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